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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/092,662

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Masashi Yano

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EXAMINER

ORTIZ, BELIX M

ART UNIT

PAPER NUMBER

2164

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/092,662

Applicant(s)

YANO ET AL.

Examiner

Belix M. Ortiz

Art Unit

2164

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 10-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
**SAM RIMELL**  
**PRIMARY EXAMINER**

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Remarks

1. In response to communications files on 24-January-2005, claims 1-9 are cancelled; and new claims 10-23 are added. Therefore, claims 10-23 are presently pending in the application.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, because of the following informalities: the claim 16 does not have period at the end of the claim.

Appropriate corrections are required.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 10-16 and 18-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Fisher et al. (U.S. patent 6,535,891).

As to claim 10, Fisher et al. teaches a storage system adapted to be coupled to a host (see abstract), the storage system comprising:

a plurality of storage devices, some of the storage devices having different performance characteristics than others of the storage devices (see column 2, lines 62-67 and column 3, lines 1-10);

a controller coupled to the plurality of storage devices for selecting at least one storage device from the plurality of storage devices based on predetermined conditions for placing data blocks therein (see column 3, lines 39-54);

an evaluator for when a data storage request is made, evaluating whether the request matches the predetermined conditions and providing a result of that evaluation (see column 14, lines 23-31); and

wherein when the result of the evaluation matches the predetermined conditions, a process is executed for placing the data blocks in the selected storage device according to the predetermined conditions (see column 1, lines 52-58 and column 11, lines 53-63).

As to claim 11, Fisher et al. teaches wherein the storage devices comprise physical storage devices (see abstract and figure 2).

As to claim 12, Fisher et al. teaches wherein a management device is coupled to the storage system for relocating data blocks in the storage devices based on the predetermined conditions (see column 1, lines 52-58; column 3, lines 39-54; and column 11, lines 53-63).

As to claim 13, Fisher et al. teaches the storage system further comprising:  
a storage to store management information for converting logical addresses accessed by the host into information for specifying the plurality of storage devices, physical addresses for the selected storage device, and preset conditions (see column 2, lines 14-21; column 8, lines 16-23; column 10, lines 28-33; and claim 19), and  
wherein when an access request to each data block is made from the host by the logical address, the preset conditions are applied to the access request, and when the result of the evaluation matches the conditions, the management information about the logical addresses and physical addresses for the storage devices is used to thereby place data blocks in the selected storage device (see column 1, lines 52-58; column 2, lines 14-21; column 3, lines 39-54; column 8, lines 16-23; column 10, lines 28-33; column 11, lines 53-63; and claim 19).

As to claim 14, Fisher et al. teaches wherein:  
when an access request to a data block is made from the host using the logical address, the preset conditions are applied to the access request to thereby evaluate the

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application thereof (see column 1, lines 30-57; column 8, lines 16-23; column 10, lines 28-33; and column 14, lines 23-31); and

when the total number of data blocks placed in a storage device selected from the result of evaluation exceeds a specified portion of capacity of that storage device, at least one of the following two events occurs (1) the data blocks are stored in another storage device or (2) the data blocks already assigned to the storage device selected are stored to another storage device so the data blocks are stored in a free location (see column 1, lines 30-52 and column 13, lines 61-63).

As to claim 15, Fisher et al. teaches wherein:

when an access request to a data block is made from the host using the logical address, the preset conditions are applied to the access request to thereby evaluate the application thereof (see column 1, lines 11-16; column 1, lines 30-57; and column 14, lines 23-31), and

when the total number of data blocks placed in a storage device selected from the result of the evaluation exceeds a preset threshold of the storage device, the storage system performs at least one of the following two events: (1) provides information about exceeding capacity of the storage device, and (2) provides information about the conditions that caused the selection of the storage device (see column 13, lines 61-63).

As to claim 16, Fisher et al. teaches wherein the preset threshold is full capacity (see column 13, lines 61-63).

As to claim 18, Fisher et al. teaches wherein the predetermined conditions include at last one of: information for an access executor for a file; information for a file owner; the file size; the file copying time; the last file update time; the last file access time; information for an application capable of executing the file; and an access rate for the file (see column 1, lines 11-16 and column 5, lines 46-47).

As to claim 19, Fisher et al. teaches wherein the process executed for placing the data blocks places data blocks in accordance with predetermined conditions, and the predetermined conditions define information for a data block to be placed in the file and information for a storage device that should place the data block (see column 1, lines 30-36; column 6, lines 42-48; and column 7, lines).

As to claim 20, Fisher et al. teaches wherein the information for a data block to be placed in the file includes at least one of: the number of bytes counted from a leading end of the file, a percentage from the leading end of the file, the number of bytes counted from a tail end of the file, a percentage from the tail end of the file, and whether it is an added part for the file (see column 1, lines 45-48).

As to claim 21, Fisher et al. teaches wherein:

the evaluator evaluates whether or not the file requested for storage by the host matches a file having a high access frequency or a file requiring a wide storage area (see column 4, lines 39-43 and column 9, lines 46-58); and

when the file requested for storage by the host device matches to a file having a high access frequency or a file requiring a wide storage area, the processing module stores a predetermined data block among a plurality of data blocks included in the file in a storage device having a fast access speed of the plurality of storage devices (see column 1, lines 42-58 and column 2, lines 48-61).

As to claim 22, Fisher et al. teaches a storage system adapted to be coupled to a host and a management device (see abstract), the system comprising:

a plurality of physical storage devices, some of the storage devices having different performance characteristics than others of the storage devices (see column 1, lines 20-29; column 2, lines 62-67; and column 3, lines 1-10);

a controller coupled to the storage devices for controlling access thereto (see column 3, lines 39-54);

at least one interface for returning a result of access to the storage devices according to an access request from a host device (see column 9, lines 18-25);

a selector for selecting a specific physical storage device from the plurality of storage devices based on a policy preset to the storage system from the management device (see column 1, lines 30-58);

the storage system including an evaluation device for, when access for a data storage request is issued from the host, evaluating whether the request matches the preset policy (see column 14, lines 23-31); and

a comparator which, when the result of the evaluation by the evaluation device



matches conditions of the policy, executes a process for placing the data blocks in the storage device selected by the policy (see column 1, lines 30-39).

As to claim 23, Fisher et al. teaches a storage system comprising:

a plurality of physical storage devices, some of the storage devices having different performance characteristics than others of the storage devices (see column 1, lines 20-29; column 2, lines 62-67; and column 3, lines 1-10);

an access controller which controls access to the plurality of storage devices (see column 3, lines 47-54; column 3, lines 65-67; and column 4, lines 1-3);

an interface between a host device and the storage devices (see column 9, lines 18-25);

policy setting apparatus to enable setting at least one policy for the storage system, the policy being a policy set so as to select one of the plurality of storage physical devices for each data structure in one file according to at least one of the data structure of the file or attributes attached to the data structure, where the data structure exists in the file upon storing the one file in the storage system as viewed from the host device (see column 1, lines 30-58); and

when access for a file storage request is made from the host device, applying the at least one policy to the file subjected to the storage request and evaluation of the result of such application (see column 8, lines 16-23; column 9, lines 18-25; and column 10, lines 28-33);

wherein data blocks are placed in a corresponding storage device for each data

structure, based on the result of evaluation (see column 1, lines 30-39; column 1, lines 52-58 and column 11, lines 53-63).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher et al. (U.S. patent 6,635,981) in view of Selkirk et al (U.S. Publication 2002/0087544).

As to claim 17, Fisher et al. does not teach the storage system further including a system for setting the predetermined conditions.

Selkirk et al. teaches dynamically changeable virtual mapping scheme (see abstract), in which he teaches the storage system further including a system for setting the predetermined conditions (see paragraph 38).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Fisher et al. to include the storage system further including a system for setting the predetermined conditions.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Fisher et al. by the teaching of Selkirk. et al., because the storage system further including a system for setting the predetermined

conditions, would enable the storage system to evaluate each data block and make the decision to where is going to be store he data and if it needs to be storage.

*Response to Arguments*

8. Applicant's arguments filed 24-January-2004 with respect to the rejected claims in view of the cited references have been fully considered but they are not found persuasive:

In response to applicants' arguments that Fisher et al. "does not provide any description of disk performance", the arguments have been fully considered but are not deemed persuasive, because Fisher et al. teaches "Computer systems typically include one or more processing devices, as well as one or more data storage devices. FIG. 1 is a block diagram of a typical computer system 100, which includes a host computer 110, having a processor 120 and a memory 130, and a storage system 140. The storage system 140 can include any of a number of different types of storage devices (e.g., tape storage devices, floppy diskette storage devices, disk drive storage devices, etc.), or a combination of a number of different types of storage devices", (see Fisher et al., column 1, lines 20-29).

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Belix M. Ortiz whose telephone number is 571-272-4081. The examiner can normally be reached on Monday-Friday 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on 571-272-4083. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

bmo

April 12, 2005

  
**SAM RIMELL**  
**PRIMARY EXAMINER**